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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,027	06/22/2000	Nagayoshi Ichikawa	016887/0999	8692

22428 7590 10/13/2004

FOLEY AND LARDNER
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WASHINGTON, DC 20007

EXAMINER

PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/599,027

Applicant(s)

ICHIKAWA ET AL.

Examiner

Rick Palabrica

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10, 12, 16, 17 and 19-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10, 12, 16, 17 and 19-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's election without traverse of species A, Markush group member, Pt, species D, species E, species G and species I, in the reply filed on 8/26/04 is acknowledged. Applicant also amended claim 16 and added new claims 32-34.

The Examiner agrees that claims 10, 12, 16, 17, and 19-34 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 10, from which claims 16 and 32 depend, recites the photocatalytic substance as being added to the reactor water to make the substance adhere to the surface of the reactor structural member. This step of the claimed method connotes that the structural member is already installed in the reactor system and the substance

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is deposited on the surface of the structural member as reactor cooling water flows through the system.

Claims 16 and 32 recite further depositing the substance on the surface of the structural member by "spraying, thermal spraying, physical vapor deposition or chemical vapor deposition."

There is neither an adequate description nor enabling disclosure as to how and in what manner the substance can be applied to the surface of the structural member by the procedure recited in claims 16 and 32, after the structural member has already been installed in the reactor.

3. Claims 16 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The new subject matter is the step of further depositing the substance by spraying, thermal spraying, physical vapor deposition or chemical vapor deposition, after the structural member has already been installed in the reactor.

4. Claims 16 and 32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for depositing the substance by addition into the reactor water and causing it to adhere to an already installed structural member, does

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not reasonably provide enablement for further the substance by spraying, thermal spraying, physical vapor deposition or chemical vapor deposition. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention commensurate in scope with these claims.

5. Claims 10, 12, 16, 17, and 19-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitations “irradiation of a light or a radioactive ray in a nuclear reactor” in line 6, and “water of the reactor” in line 8. Underlining provided. There are insufficient antecedent bases for these limitations in the claim. As to “nuclear reactor”, the preamble of the claim recites a “reactor structural member” and the term, “reactor”, can apply to a chemical reactor not just a nuclear reactor. The same insufficiency applies to “water of the reactor” because not all reactors have water as coolant; some have gas or liquid metal for coolants.

Claim 12 recites the limitation “feedwater in the nuclear reactor” in line 2. There is insufficient antecedent basis for this limitation in the claim. Parent claim 10 recites a generic “water of the reactor”, and there are many different kinds of water in a water-cooled nuclear reactor, e.g., condensate water, circulating water for the ultimate heat sink.

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Claim 23 recites the limitations "nuclear fuel" and "purifier placed in a condensing system" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claims 25-28 have similar antecedent insufficiencies for the terms "feedwater", "nuclear reactor", "nuclear fuel", etc.

Claims 16 and 32 are vague, indefinite and incomplete because there is no support as to how further deposition of the substance can be made by spraying, thermal spraying, physical vapor deposition or chemical vapor deposition after the structural member has been installed in the reactor. See also section 2 above.

Based on the above, the metes and bounds of the claims cannot be determined.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 6:30-5:00, Mon-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
October 7, 2004

A handwritten signature in cursive script, appearing to read "R. Paley".